Dr. Anup Ghosh

Assistant Professor, Department of Aerospace Engineering,

Indian Institute of Technology Kharagpur.

Area of Specialisation Structural Engineering
Areas of Research Aerospace Structures, Laminated Composite Structures, Micro Air Vehicle, Unmanned Aerial Vehicle.

Educational Qualifications:

Degree/ Examination	University/ Board/ Institute	Passing Year	Subject	% Marks	Remarks
Doctor of Philosophy	IIT KHARAGPUR	2003	STRUCTUR ES	No Grade Awarded	
Master of Engineering	BENGAL ENGINEERING COLLEGE (A DEEMED UNIVERSITY)	1999	CIVIL ENGINEERI NG (STRUCTUR AL ENGINEERI NG)	75	
Bachelor of Engineering	JGEC, NORTH BENGAL UNIVERISTY	1996	CIVIL ENGINEERI NG	77.5	2nd (University Medal)
Higher Secondary Examination	WEST BENGAL COUNCIL OF HIGHER SECONDARY EDUCATION	1991	SCIENCE	72.5	All India Rank, 165
Madhyamik Pariksha	WEST BENGAL BOARD OF SECONDARY EDUCATION	1989		73.11	

Experience Details

Nature of Experience	University/ Organization	Designation	From	To
Teaching	IIT KHARAGPUR	ASSISTANT PROFESSOR	28-07-2005	Present
Teaching	IIT KHARAGPUR	VISITING FACULTY	26-03-2004	27-07-2005
Industry	FLUIDYN SOFTWARE & CONSULTANCY PVT. LTD.	SENIOR RESEARCH ENGINEER	02-06-2003	16-03-2004

Number of Patents (Filed and Published):

1. **Anup Ghosh**, Naba Kumar Peyada and Manabesh Panda; "A MULTI-COMPONENT FORCE MEASUREMENT AND DATA ACQUISITION SYSTEM", Ref. No. / Application No. 201831009792, Published on 20/09/2019
2. **Anup Ghosh**, Naba Kumar Peyada and Aditya Pahuja; "SMART INTERACTIVE INFORMATION DISPLAY SYSTEM", Ref. No. / Application No. 201831044187, 23/11/2018 (Applied)

Number of Ph.D guided: (i) Completed: 2; (ii) In Progress: 4

Number of Publications (National / International): 34 (Journals & Conferences)

Sponsored Projects:

SN	Title of Project	Sponsoring Agency	Status
1	Fracture control of CFRP laminated composites using smart materials approach under cryogenic environmental conditions.	Aeronautical Research and Development Board	Continuing
2	Adaptation Of Trajectory Optimization Techniques For Onboard Implementation For Unpowered Air Dropped Glide Vehicle	Research Centre Imarat, Hyderabad	Continuing
3	DST - Fist Project At The Department Of Aerospace Engineering	Department Of Science And Technology(DST),Government Of India	Continuing
4	Rreal Time Detection Of Face/Core Debond Initiation And Interfacial Delamination Propagation Morphology In Sandwich Composite Panels Using Fiber- Optic Bragg Grating Sensors	ISRO, IIT Kharagpur Cell,Space Technology Cell,	Completed
5	Boeing University Relations	Boeing, USA	Completed
6	Fist Program: Department Of Aerospace Engineering	Department Of Science And Technology(DST),Government Of India,	Completed
7	Studies On Initiation And Propagation Of Damage In Smart Composite Plates And Shells	Isird, SRIC,IIT Kharagpur	Completed
8	Aerodynamic Investigation Of Smart Flying Wing Mav	Asian Office Of Aerospace R&D,Asian Office Of Aerospace R&D, 10 U.S.C. 2358 7-23-17, Roppongi, Minato-Ku Tokyo, 160-0032 Japan	Completed
9	Design And Development Of Mr Fluid Based Damper For Aircraft Applications	ADA,Bangalore	Completed
10	Composite Application Laboratory	TIFAC	Completed

Introduced Infrastructural facilities in the Institute

Established **Aeromodelling Laboratory** at Aerospace Engineering Department, IIT Kharagpur

Teaching Experience (Subject/S Taught/Teaching)

1. ME10001 Mechanics, 3-1-0 4, 1st year common subject.
2. CE13001 Engineering Drawing (Both Parts a) board drawing and b) CAD), 1-0-3 3, 1st year common subject.
3. AE21003 DYNAMICS FOR AEROSPACE ENGINEERS, 3-1-0 4.
4. AE29004 STRUCTURES LAB -I, 0-0-3 2.
5. AE39003 STRUCTURES LAB -II, 0-0-3 2.
6. AE31002 AEROSPACE STRUCTURAL DYNAMICS, 3-1-0 4.
7. AE31006 COMPUTER APPLICATION IN AERO. ENGINEERING, 3-0-0 3.
8. AE49003 AIRCRAFT DESIGN & OPTIMISATION, 1-0-3 3.
9. AE51003 APPLIED ELASTICITY & PLASTICITY, 3-0-0 3.
10. AE60003 AEROSPACE STRUCTURES, 3-1-0 4.
11. AE69003 EROSPACE LABORATORY I, 0-0-3 2.
12. AE69001 SEMINAR-I, 0-0-3 2.

Workshop / Conference / Invited Seminar / Short-Term Course Organized

Type	Name	Year	Participants
Conference organized	ICTACEM 2004, 2007, 2010, 2014, 2017	2004, 2007, 2010, 2014, 2017	350
Workshop organized	Aeromodelling Workshop (every year from 2005 to 2009)	2005 to 2009	50
Short-term course organized	Short Term Course on Helicopter Technology for Young Engineers	2005	25
Short-term course organized	ISWT on Aircraft Design Practices	2014	55

Publication in Refereed International Journal/s

1. Abha Gupta and **Anup Ghosh**, "Isogeometric static and dynamic analysis of laminated and sandwich composite plates using nonpolynomial shear deformation theory" , Composites Part B , First published version available online: 13-AUG-2019, Vol- 176, DOI information: https://doi.org/10.1016/j.compositesb.2019.107295.

2. Vikas Kaushik & **Anup Ghosh**, " Experimental and numerical characterization of Mode I fracture in unidirectional CFRP laminated composite using XIGA-CZM approach" Engineering Fracture Mechanics, Vol. 211, pp- 221-243, Published online on 14 February 2019, https://doi.org/10.1016/j.engfracmech.2019.01.038.

3. Abha Gupta & **Anup Ghosh**, "Static And Transient Analysis Of Sandwich Composite Plates Using Isogeometric Analysis", Mechanics of Advanced Materials and Structures, Vol. 26, No.1, pp- 81-87, Published online on 3 January, 2019. DOI: 10.1080/15376494.2018.1534169.

4. Vikas Kaushik & **Anup Ghosh**, " Fatigue life estimation and crack propagation analysis of orthotropic lamina using XIGA methodology ", Mechanics of Advanced Materials and Structures, Published online on 22 June 2018, DOI: 10.1080/15376494.2018.1472324.

5. Ramesh Kumar. M, **Anup Ghosh**, Karuppannan D, "Numerical and Experimental Characterization of Composite Secondary Bonded Adhesive Lap Joint using Ultrasonics method"; Mechanics of Composite Materials, Vol. 54, Issue. 2, pp - 257-268, January, 2018.

6. A Gupta, **A Ghosh**; "Bending Analysis of Laminated and Sandwich Composite Reissner-mindlin Plates Using Nurbs-based Isogeometric Approach"; Procedia Engineering 173, 1334-1341, 2017.

7. M R Kumar, **A Ghosh**, D Karuppannan, R Sundaram; "Numerical and Experimental Studies of Porosity on Aerospace Grade Advanced Composites"; Materials Today: Proceedings; 4 (8), 8697-8705, 2017.

8. SB Kerur, **A Ghosh**; "Geometrically Non-Linear Bending Analysis of Piezoelectric Fiber-Reinforced Composite (MFC/AFC) Cross-Ply Plate Under Hygrothermal Environment"; Journal of Thermal Stresses; 36 (12), 1255-1282, 2013.

9. SB Kerur, **A Ghosh**; "Active Control of Geometrically Non-linear Transient Response of Smart Laminated Composite Plate Integrated with AFC Actuator and PVDF Sensor"; Journal of Intelligent Material Systems and Structures; 22 (11), 1149-1160, 2011

10. SB Kerur, **A GHOSH**; "Active vibration control of composite plate using AFC actuator and PVDF sensor"; International Journal of Structural Stability and Dynamics; 11 (02), 237-255, 2011

11. **A Ghosh**; "Hygrothermal effects on the initiation and propagation of damage in composite shells"; Aircraft Engineering and Aerospace Technology; 80 (4), 386-399, 2008.

12. **A Ghosh**, PK Sinha; "Initiation and propagation of damage in laminated composite shells due to low velocity impact"; International Journal of Crashworthiness; 10 (4), 379-388, 2005.

13. **A Ghosh**, PK Sinha; "Dynamic and impact response of damaged laminated composite plates"; Aircraft Engineering and Aerospace Technology; 76 (1), 29-37, 2004.

Publication in Refereed National Journal/s

14. Abha Gupta & **Anup Ghosh**, "Nurbs Based Thermo-Elastic Analyses Of Laminated And Sandwich Composite Plates", Accepted in Sadhna on Dec 2018. Online from 21 March, 2019, DOI: 10.1007/s12046-019-1063-7

15. MR Kumar, D Karuppannan, R Sundaram, **A Ghosh**; "Experimental Investigation of Aerospace Grade Composites Porosity Laminates Under Hygro-Thermal Environment condition"; Journal of Aerospace Science and Technologies; 69 (1), 36-46, 2017.

16. **A Ghosh**, PK Sinha; "Stress and Displacement Behaviour of Damaged Laminated Composite Plate Under Bending"; Journal of the Institute of Engineers (India) 83, 55-63, 2002.

Publication in Proceeding of International Seminars/Conferences

17. Nagappa Siddgonde and Anup Ghosh,"Thermo-mechanical Modeling of 3D Woven Fabric Composites Using Two-step Homogenization Approach", IMECE®, International Mechanical Engineering Congress & Exposition®, Calvin L. Rampton Salt Palace Convention Center, Salt Lake City, Utah, November 11 – 14, 2019. (Accepted for presentation)

18. Nagappa Siddgondea, Anup Ghosh, "Thermo-mechanical Modelling of 5-harness Satin Weave C/C Composites at High Temperature", 9th International Conference of Materials Processing and Characterization, ICMPC-2019, Gokaraju Rangaraju Institute of Engineering & Technology, Hyderabad, India, Papere Id - 1349, Held on 8-10 March, 2019.

19. Vikas Kaushik & Anup Ghosh, "XIGA based intralaminar and translaminar fracture analysis of unidirectional CFRP laminate", American Society for Composites, 33rd Technical Conference, September 24-27, 2018, Morif Hotel, Seattel, WA, USA. DOI: 10.12783/asc33/26049

20. A Gupta, A Ghosh; "Static And Transient Analysis Of Sandwich Composite Plates Using Sogeometric Analysis", IIT Hyderabad Conference-ICCMS-2017, Paper ID: 454

21. Ramesh Kumar. M, Anup Ghosh, Karuppannan. D, Sakthi Sathya. P, Ramesh Sundaram; "Destructive and Non-Destructive Analysis of Adhesively Bonded Composite `T' Joints"; International Conference on Composite Materials and Structures (ICCMS), December 2017.

22. Supen Kumar Sah, Anup Ghosh, Chetan S Mistry; "tructural and Vibration Analysis of High Aspect ratio Low Speed Contra-Rotating Fan Stage"; 7th The International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM), December 2017. ID- 401.

23. Tuhin Bandopadhyay, Shashank Gandhi, N. K. Peyada, A. Ghosh; "Handheld FFT Analyser"; 7th The International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM), December 2017. ID- 212.

24. Ramesh Kumar. M, Anup Ghosh, Sakthi Sathya. P, Karuppannan. D, "Numerical and Non Destructive Studies of Secondary Bonded Composite T-joints", 7th The International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM), December 2017.

25. A Gupta, A Ghosh; "Transient Analysis of Anti-symmetric Cross-Ply and Angle-Ply Laminated Composite Plates Using Nurbs-Based Isogeometric Analysis"; 58th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference; pp- 1980, 9 - 13 January 2017, Grapevine, Texas

26. Ramesh Kumar. M, Anup Ghosh, Karuppannan.D, Ramesh Sundaram, "Numerical and Experimental Studies of Porosity on Aerospace Grade Advanced Composites", International Conference on Advancements in Aeromechanical Materials for Manufacturing (ICAAMM), July 2016.

27. Ramesh Kumar. M, Anup Ghosh, Karuppannan. D, Ramesh Sundaram, "Effect of Porosity on Inter Laminar

Shear Strength in carbon/epoxy composites", 6th The International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM), December 2014.

28. Kerur, S.B. and Ghosh, A., "Geometrically Nonlinear Transient Response of Active Fiber Composite Smart Plate", Proceedings of International Conference on Theoretical, Applied, Computational and Experimental Mechanics, December 27-29, 2010, IIT Kharagpur, India, ICTACEM -2010/257.

29. Kerur, S.B. and Ghosh, A., "Vibration Control of Geometrically Non-Linear Composite Smart Plate with AFC Actuator and PVDF Sensor", Proceedings of International Conference on International Conference on Vibration Engineering & Technology of Machinery, December 13-15, 2010, IIT Delhi, VETOMAC-VI-AB00124.

30. Kerur, S.B. and Ghosh, A.,"Active Control of Geometrically Nonlinear Transient Response of Smart Laminated Composite Plate Integrated With AFC Actuator and PVDF Sensor"; Proceedings of the ASME 2010 Conference on Smart Materials, Adaptive Structures and Intelligent Systems, September 28 - October 1, 2010, Philadelphia, Pennsylvania, USA, SMASIS2010, 3647.

31. Anup Ghosh and P. K. Sinha, "Initiation and Propagation of Failure in Clamped and Simply Supported Damaged Laminated Composites due to Impact", Third International Conference on Theoretical, Applied, Computational and Experimental Mechanics, December 28-30, 2004.

32. Sharad Tripathi, Arun Murthy, Alain Hodin, K. Suresh, Anup Ghosh, "Shock wave Propagation due to Methane-Air Mixture Explosion and Effect on a Concrete Enclosure", CNRI AFTP/CEPM/GEP Conference on Petrol & Gas, 2010, Bourges, October 2003

33. Anup Ghosh and P. K. Sinha, "Initiation and Propagation of Damage in Laminated Composite Plate Under Dynamic Loading", Proceedings of 54th AGM & International Seminar On Indian Aviation-Challenges & Perspectives, Aeronautical Society of India, Paper No. 21, 2003.

34. Anup Ghosh and P. K. Sinha, "Initiation and Propagation of Failure in Damaged Laminated Composites due to Impact Loading", Plasticity and Impact Mechanics : Proceedings of 8th International Symposium on IMPLAST 2003. New Delhi : Phoenix Publishing House Pvt. Ltd., pp. 696-703, 2003.